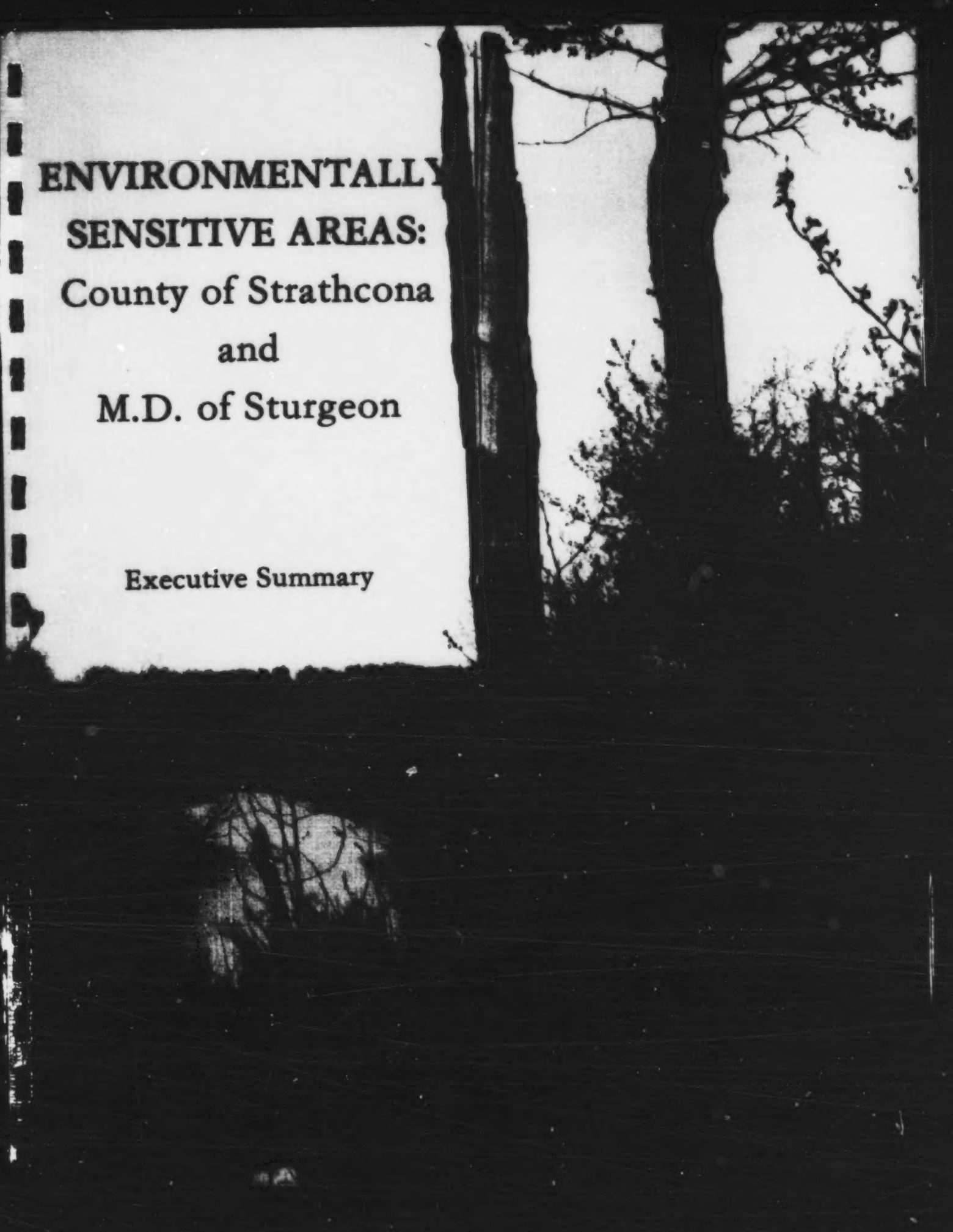
ENVIRONMENTALLY SENSITIVE AREAS:

County of Strathcona

and

M.D. of Sturgeon

Executive Summary



ENVIRONMENTALLY SENSITIVE AREAS STUDY
PHASE THREE REPORT: EXECUTIVE SUMMARY

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EXECUTIVE SUMMARY

Introduction, Methods and Environmental Overview

Under the direction of the Edmonton Metropolitan Planning Commission an Environmentally Sensitive Areas study was conducted for the County of Strathcona and the M.D. of Sturgeon. The purpose was to provide an inventory of Environmentally Sensitive Areas (ESA's), to assess the relative sensitivity and significance of the ESA's, to provide an overview of land planning options available to the Commission and, where necessary, to refine the pertinent policies within the Edmonton Metropolitan Regional Plan. The research conducted for this study augmented existing data for the Co. of Strathcona, whereas some of the data generated for this study did not exist at the time of the completion of the Metropolitan Regional Plan and General Municpal Plan of the M.D. of Sturgeon.

The data collection process reviewed existing biological/ecological and physiographic/terrain data as well as adding new information to the data base, especially in the M.D. of Sturgeon. Air photograph interpretation delineated the ESA's of interest. A modest degree of fieldwork and site inventory was used to collect site specific information and to establish, and refine where necessary, ESA boundaries. Interviews with experts and knowledgeable individuals added to the ESA database. The dominant diagnostic attributes of an ESA were as follows:

1. hazard lands and areas which are unsuitable for development in their natural state,

2. areas which perform a vital environmental, ecological or hydrological function,

3. areas which contain unique geological or physiographic features,

4. areas, buildings or features which are important for cultural or historic reasons,

5. areas which contain significant, rare or endangered species,

6. areas which are unique habitats with limited representation in the region or area a small remnant of once larger habitats which have virtually disappeared,

7. areas which contain an unusual diversity of plant and/or animal communities due to variety of geomorphological features and microclimatic effects,

8. areas which contain large and relatively undisturbed habitats and provide sheltered habitat for species which are intolerant of human disturbance,

9. areas which contain plants, animals or land forms which are unusual or of regional, provincial or national significance,

10. areas which provide an important linking function and permit the movement of wildlife over considerable distance.

Most ESA's identified in this study embodied several of the above attributes.

The evaluation of each ESA allowed for the relative significance of the ESA's to be classified as: locally, regionally, provincially, nationally or internationally significant. There were found to be no examples of nationally or internationally significant ESA's in the study area, although the Cooking Lake Moraine Area could qualify by means of the large number of regional and provincial wetlands within the Moraine.

Each ESA was judged as to it's relative sensitivity to changes and disturbance. The following three sets of characteristics were indicative of land units sensitive to disturbance:

1. a high susceptibility to erosion,

2. a severe limitation to revegetation, and

3. a mixture of landform and vegetation that would make the land unit of important significance to wildlife.

The ESA's judged to have a high sensitivity to disturbance were generally: sand dunes and similar landforms, wetlands and riparian habitat and eroded terrain such as valleys, coulees and gullies.

The study area lies along the boundary zone of the Aspen Parkland and Boreal Mixedwood Ecoregions. These ecoregions were further subdivided into eight ecologcial subregions, thus providing, in a broad sense, components of the landscape which have similar patterns of landform, soil, vegetation and climate. Fish and wildlife resources were discussed on a regional basis with waterfowl production, moulting, staging and migration being particularly important.

Cultural, Historical and Archaeological Resources

Cultural, historical and archaeological resources were discussed at some length. A listing of archaeological sites highlighted two camps of high significance in the Co. of Strathcona as well as two bison traps of unknown significance. Historic resources were tabulated for the two rural municipalities; of special note were the five Designated Provincial Historic Sites located in the study area.

Environmentally Sensitive Areas

The study identified 69 Environmentally Sensitive Areas of varying levels of significance. The ESA's represent a number of differing environmental themes. The following is a listing of the themes mapped:

* 34 wetlands with a waterfowl dominant theme,
* 12 examples of remnant mixedwood forest with an upland wildlife or ungulate habitat emphasis,
* 11 landscapes with a combination of wildlife, recreation, or physiographic/surficial geological themes,
* 8 landscapes with a surficial geological, geological history or physiographic theme,
* 2 examples of landscapes with a combination of geological and historical themes,
* 1 example with a hydrogeological emphasis, and
* 1 landscape with a recreational theme and subdominant wildlife values.

As can be easily noted by examining the above listing, the study area's wetlands clearly stand out, both in number and quality, as the most important Environmentally Sensitive Areas. The Edmonton Region by all objective analyses is one of the Province's, and likely Canada's, outstanding waterfowl landscapes.

The following is a listing of the ESA's along with a few brief comments. The ESA's are ranked by level of significance. These areas are outlined on the map set contained in the back pocket of this executive summary.

Provincially Significant Areas

1. BIG LAKE

-very important production, moulting, staging and migration Lake for waterfowl.

-diverse riparian habitats.

-birdsfoot delta of the Sturgeon River.

-proximity to large urban centre allows for very significant tourist, interpretative and educational potential.

2. MANAWAN (EGG) LAKE

-very important value for staging and migration of waterfowl.

-excellent wetland habitat values.

-emergency water supply for Town of Legal.

3. NORTH SASKATCHEWAN RIVER VALLEY

-interprovincially important river.

-diverse riparian and valley habitats.

-provides key habitat for white-tailed deer.

-diverse sites of interpretative and educational value relative to geological and paleontological history as well as present day fluvial processes.

-possesses scenic and recreational characteristics not found elsewhere in central Alberta.

-exposures in gravel pits in the valley have in past shown interesting periglacial features such as fossil sand wedges;in addition these sites have yielded paleontological discoveries such as bones of dinosaur, woolly mammoth, bison, etc.

4. COOKING LAKE

-key component of the very important production, moulting, staging and migration complex of the Cooking Lake moraine.

-sheltered bays and islands provide productive breeding habitat for water-associated birds and mammals.

-similar to Big Lake in that the proximity to an urban centre and major highways gives the lake high potential for an interpretative centre.

N.B.: for the purposes of future inter-municipal study, a dashed boundary has been placed around a large portion of the Cooking Lake Moraine. This dashed boundary gives recognition that the moraine, when viewed as an interrelated wetland system, has higher significance than Cooking Lake itself.

5. POINTE - AUX - PINS SOAPHOLES

-a provincially very scarce hydrogeologic feature.

-groundwater springs give the landscape a mounded surface and crusted, soaplike nature.

-the close urban proximity gives the site unusually high educational/interpretative value.

Regionally Significant Areas

6. SANDY LAKE

-important recreational lake.

-significant regional fishery.

-good waterfowl values relative to staging and migration.

-relatively unimpacted shoreline provides good riparian habitat for shorebirds and mammals.

7. SANDY LAKE, SOUTHEAST SHORE

-important natural habitat with high recreational/interpretative potential for the M. D. of Sturgeon.

-one of the largest remnant mixedwood forests in the M.D. of Sturgeon.

8. DEADMAN LAKE

-important wetland for waterfowl staging and migration.

-significant waterfowl production values.

9. CALAHOO UPLAND

-the only morainic upland in the M.D. of Sturgeon.

-large acreage of remnant natural forest intermixed with land clearing for agriculture gives a distinctive 'parkland'-like appearance.

-important ungulate habitat plus wildlife corridor value.

-significant waterfowl habitat, especially along lower slopes of the upland.

10. GLADU LAKE UPLAND

-unique landform due to glacial thrusting; sand and gravel cap was transported from the Villeneuve area.

-large remnant mixedwood forest.

-very important groundwater recharge area for the M.D. of Sturgeon.

-Gladu Lake and it's shoreline are one of the few essentially unimpacted lake environments in the Edmonton Metropolitan Region.

-good waterfowl production, staging and migration values.

11. VILLENEUVE GRAVEL PITS

-an area bounded by a dashed line which indicates that the area is presently being actively worked for it's very important aggregate potential.

-the aggregate pit mining exposes some of the finest exposures of Quaternary deposits to be found in the Edmonton region. Thus the area has very significant educational value.

-recommendations are to attempt to 'save' a series of these exposures for their interpretative and educational value, perhaps in conjunction with a regional park similar to Cardiff Park.

12. STURGEON RIVER VALLEY, BON ACCORD SOUTH

-on boundary of local-regional significance.

-largest remnant mixedwood forest associated with the Sturgeon River Valley.

-diverse valley habitats, both for ungulates and riparian mammals.

-excellent scenic value gives the area future recreational potential, either developed as a park or as a 'natural' area.

13. LILY LAKE

-excellent example of a glacial meltwater channel.

-good waterfowl values and riparian habitat.

-the nearby environs have been noted to host the disjunct plants: pink spirea and meadow blazing star.

-the combination of the proximity of the Athabasca Landing Trail, glacial historical importance, the wetland values and the established Alberta Wildlife Park gives the area excellent potential for a tourism oriented interpretative centre.

14. BON ACCORD NORTH

-part of the ice-contact complex found north of Bon Accord, thus excellent examples of glacial landforms.

-important waterfowl habitat values for production and migration.

-excellent emergent vegetation and shoreline characteristics give the area high habitat values for water-associated birds and mammals.

-large acreage of mixedwood forest; few such remnants are left in the this portion of the M.D. of Sturgeon.

15. LOSTPOINT LAKE

-significant waterfowl staging and migration lake.

-largest lake in the complex of sand dunes found in the eastern M.D. of Sturgeon.

-some remnant mixedwood forest borders the lake.

16. CORONADO EAST

-large area of well developed sand dunes; these large dunes are not found elsewhere in the region.

-the dune field is relatively undisturbed and located within the area is a Provincial Natural Area and a Ducks Unlimited waterfowl project.

-hosts a very diverse vegetational mosaic due to the various plant responses to the changing edaphic conditions.

-good upland wildlife habitat especially in the more mesic sites along the lower slopes of the dunes and in the poorly drained blowouts.

17. REDWATER

-one of the largest sand dune fields in the region.

-the area has a large Provincial Natural Area and significant acreage of remnant natural forest.

-possesses good wildlife habitat values which is reinforced by it's proximity to the North Saskatchewan River Valley.

18. ASTOTIN

-possess a mix a features not present in the region, in that the area has low sand dunes, a stream watercourse and wetland marshes.

-the resultant habitat diversity is distinctive.

-the area includes a Provincial Natural Area and is generally unimpacted, though a natural groundfire in 1988 has affected a significant acreage of the forest cover.

19. COOKING LAKE MEGABLOCK

-an interesting geological feature consisting of a 10 sq. km block of bedrock moved to it's present location by the last glaciation.

-glacial plucking of large bedrock slabs is noted in many parts of the Province, this example is considered important due to it's urban proximity, large size and surface exposure.

20. HASTINGS LAKE

-important lake for production, moulting, staging and migration of diving ducks.

-islands provide secure nesting habitat for a resident population of Canada geese.

-the shoreline remains in a natural condition.

21. WANISAN LAKE

-provides important nesting, staging and migration habitat for diving ducks and diversity of water-associated birds.

-has large nesting colonies of black terns and eared grebes.

-a relatively secluded lake with a relatively undisturbed shoreline.

22. SISIB LAKE

-good semi-aquatic furbearer habitat.

-a small but highly productive lake for the production, staging and migration of waterfowl.

-a small population of Canada geese use artificial nesting islands.

23. SOUTH HASTINGS KEY UNGULATE AREA

-a large acreage of largely natural habitat which supports good populations of white-tailed deer and moose.

-the remnant forest serves as an important wildlife travel corridor between Ministik Lake and the Blackfoot Grazing Reserve.

-the largest block of relatively undisturbed habitat,of it's type, in the Edmonton region.

24. SHERWOOD PARK NATURAL AREA

-Education Natural Area since 1971.

-dedicated as a Wildlife 87 area.

-relatively undisturbed aspen forest with good wildlife habitat values.

25. NORTH OF BRUDERHEIM NATURAL AREA

-Natural Area reserved since 1963.

-upland sand dunes and jack pine forest interspersed with wetlands.

-unusual diversity of vegetation.

26. DEVILLE NATURAL AREA

-under reservation since 1974 for a Recreation Natural Area potential.

-diverse wetland and shoreline communities on the north shore of Hastings Lake.

-good riparian wildlife habitat.

27. MINISTIK LAKE

-significant lake for production, moulting, staging and migration by diving ducks, dabbling ducks and Canada geese.

-important migration stop over for tundra swans.

-productive habitat for non-game waterbirds and semi-aquatic furbearers.

-partially protected since 1911 by the Ministik Bird Sanctuary.

28. BIG ISLAND LAKE

-significant breeding habitat for at least 11 species of ducks, Canada geese and other water-associated birds.

-productive habitat for muskrats.

29. BRETONA POND

-small but productive wetland for the production, moulting, staging and migration of waterfowl.

-site of a "Buck for Wildlife" habitat improvement project.

-provides excellent opportunities for wildlife viewing and wetland interpretation.

30. HALFMOON LAKE MELTWATER CHANNEL

-a prominent erosion landform representing former glacial meltwater drainage channels.

-contains several remnant lakes, ponds and wetlands of significance to waterfowl and other water-associated birds.

Locally Significant Areas

31. RIVIERE QUI BARRE SLOUGH

-a Ducks Unlimited project slough.

-good wetland values plus sloughs of this type are scarce in this central portion of the M.D. of Sturgeon.

32. MORINVILLE EAST SLOUGH

-remnant wetland habitat in an area of the M.D. of Sturgeon where such habitat is scarce.

33. MORINVILLE SOUTH SLOUGH

-remnant wetland habitat in an area of the M.D. of Sturgeon where such habitat is scarce.

34. STURGEON VALLEY NAMAO

-only acreage of remnant forest along this reach of the Sturgeon River.

-has a good mix of fluvial landforms, upland forest and minor wetland features.

-close proximity to St. Albert.

35. LANCASTER LAKE

-remnant wetland habitat, very close to the City of Edmonton.

-similar habitat is scarce in this portion of the M.D. of Sturgeon.

36. LEGAL NORTHEAST

-an 80 acre remnant of mixedwood forest in an area virtually completely cleared for arable agriculture.

-the area occupies a segment of a glacial meltwater channel and has a mixture of minor waterfowl and upland wildlife habitat.

37. CARDIFF MINE

-reclaimed coal mine site.

-spoil piles and other remnant features could be developed into an interpretative centre to be run in conjunction with the onsite regional park.

38. STAR KEY MINE

-old coal mine site in close proximity to St. Albert which could have interpretative potential.

39. ESKER

-one of the very few examples of this glacial landform in the Edmonton region.

40. WAYBROOK LAKES

-small lakes or ponds with productive waterfowl values.

41. LILY SLOUGH

-a wetland dominated by emergent vegetation which provides good waterfowl and water-associated bird habitat.

42. LILY LAKE EAST

-a relatively unimpacted series of low sand dunes that mark the eastern limit of cultivation in this portion of the M.D. of Sturgeon.

-hosts a diversity of vegetation communities which react to the different site conditions present in the dune field.

-remnant white-tailed deer and moose habitat.

43. WOSNEY SLOUGH

-small but productive area for the production, staging and migration of waterfowl.

-a Ducks Unlimited project site.

44. REDWATER BRIDGE ISLANDS

-only large instream islands in this reach of the North Saskatchewan River Valley.

-very similar environment to islands near Ft. Saskatchewan which are critical wintering habitat for deer. We have assumed the same importance for these islands.

45. STRATHCONA WILDERNESS CENTRE AND BENNETT LAKE FOREST

-large, relatively undisturbed acreage of good wildlife habitat adjacent to the Strathcona Wilderness Centre.

-excellent example of hummocky ablation moraine.

-interesting diversity of vegetation.

46. BENNETT LAKE

-good waterfowl and riparian bird habitat.

-shoreline is in a relatively natural condition.

48. ANTLER LAKE

-good waterbird and semi-aquatic furbearer habitat.

49. TWIN ISLAND LAKE

-good waterfowl and muskrat habitat.

50. McFADDEN LAKE

-good waterfowl, riparian bird and muskrat habitat.

51. COLEMAN LAKE

-good waterfowl and muskrat habitat.

52. TRAPPER'S LAKE

-good waterbird and semi-aquatic furbearer habitat with habitat enhancement potential.

53. BOAG LAKE

-small populations of water-associated birds and muskrats.

-close proximity to Sherwood Park.

54. MANIQUE LAKE

-excellent waterfowl production habitat.

55. PARTRIDGE HILL

-a series of small sloughs and potholes with good habitat for the production of waterfowl.

-good habitat for water-associated birds.

56. TWP. 51, RGES. 22 and 23 SLOUGHS

-good waterfowl and water-associated bird habitat.

57. TWP. 51, RGES. 20 AND 21 SLOUGHS

-good waterfowl habitat.

58. TWP. 52, RGES. 20 - 23 SLOUGHS

-good waterfowl and muskrat habitat.

59. TWP. 53, RGE. 21 SLOUGHS

-good waterfowl production habitat.

60. TWP. 54, RGES. 21 AND 22 SLOUGHS

-good waterfowl production habitat.

61. ASTOTIN CREEK

-important watercourse with valuable riparian habitat.

-good beaver habitat.

-wildlife travel corridor.

62. ROSS CREEK

-important watercourse with valuable riparian habitat.

-wildlife travel corridor.

-sportfish may occur in it's lower reaches.

63. POINTE-AUX-PINS CREEK

-important watercourse with valuable riparian habitat.

-wildlife travel corridor.

-contains interesting ravine features.

-sportfish may occur in it's lower reaches.

64. LOWER OLDMAN CREEK

-interesting ravine feature with diverse vegetation communities.

-suitable winter habitat for deer.

-sportfish may occur in it's lower reaches.

65. MEANDER SCAR AND OXBOW

-interesting fluvial geomorphological landform.

-the largest example of these features in the study area.

-diverse and productive wildlife habitat.

66. TRAPPER'S LAKE FOREST

-remnant mixedwood forest.

-good upland wildlife habitat.

67. TWP. 54, RGE. 20 SLOUGHS

-good to excellent waterfowl production habitat with a high density of water bodies.

-includes upper Astotin Creek valley, next to Elk Island National Park.

68. McFADDEN LAKE FOREST

-relatively large acreage of remnant mixedwood forest.

-good upland wildlife habitat values.

-valuable wildlife corridor.

69. RIVERLOT NATURAL AREA

-Riverlot 56 Provincial Natural Area.

-unique remnant acreage of mixedwood forest with Sturgeon River frontage. Unique in the sense of its location adjacent to a large urban centre.

-good wildlife habitat with over 30 varieties of birds catalogued to date.

Planning Considerations

Protection of the environment is a legitimate concern of local governments. It is actively encouraged by more senior levels of government by providing enabling legislation, supporting conservation efforts and establishing parks, natural areas, ecological reserves and wildlife sanctuaries. A concern of municipalities can be the financial considerations. These considerations often revolve around who bears the cost of environmental protection. But more fundamentally, the question of environmental protection is not a technical or economic one; rather the question is one of attitude. If municipal representatives feel that the environment should be protected, then the process is much easier to accomplish than if the perception is that the environment does not need protection, or only if there is no cost associated with protective measures.

The Edmonton Metropolitan Regional Planning Commission has included environmental protection as an important part of the Regional Plan. It provides direction for the municipalities and some general guidelines when environmentally sensitive areas are being addressed. This is a good legal basis upon which municipalities can base their land use requirements.

The M.D. of Sturgeon and the Co. of Strathcona are at two very different stages of development relative to the inclusion of ESA's into their General Municipal Plans. The M.D. is at an early stage, whereas the County has addressed environmentally significant areas within their plan and provided for a more detailed planning of ESA's within it's Outdoor Master Plan.

Without compromising the considerable effort that has gone into the development of the Regional Plan and the General Municipal Plans, it is evident that some of the information in this study did not exist at the time the plans were completed. As a result of this study, and the independent examination of what might be done to address environmentally sensitive areas

within the planning process, a number of recommendations have evolved and form the heart of the planning considerations. These recommendations for action would benefit from discussion with municipal representatives prior to implementation.

Regional Plan Recommendations

Relative to the Regional Plan the following recommendations were made.

1. The EMRPC should review, provide opportunity for public input, modify if necessary and then endorse this study of environmentally sensitive areas, with particular regard to the areas identified and the level of significance.

2. Section 7.1 of the Regional Plan should add provincially significant ESA's, designated historic sites and archaeological sites of high importance to those which municipalities should recognize.

3. The Regional Plan should compel rather than suggest municipalities protect provincially significant ESA's and comparable historic and archaeological sites identified in the study.

4. The EMRPC should prepare protection guidelines to ensure the continuance of provincially significant areas while allowing for necessary development. These guidelines should include:

* boundary buffers or set backs,
* total water withdrawal limits (hydrologic studies may be required),
* road access spacing for significant waterfowl and wildlife ESA's,
* restrictions on shoreline stabilization measures,
* land clearing limits,
* restrictions on "first parcel out" of unsubdividied quarters, and other factors that may be necessary depending on municipal and public input.

5. The Cooking Lake Moraine should be specifically recognized in the Regional Plan as a unique environment. The designation of this provincially significant area will require unique treatment. This is due to the number of individual components which combine to provide character to this large area. The plans prepared by the Co. of Strathcona in this area should be monitored at the very least, and preferably include participation of planning Commission staff to represent the broader interest in this area.

6. The Regional Plan should include a review function by the provincial government (presumably Recreation and Parks and Forestry, Lands and Wildlife) for any plans or development which may materially effect provincial level ESA's.

M.D. of Sturgeon Recommendations

Relative to the M.D. of Sturgeon, the following recommendations were made.

1. Section 2.05 of the General Municipal Plan should have the terms "environmentally sensitive areas" and "designated historic sites" added. Furthermore, the preceding explanation of this objective should combine the likely need to preserve certain important areas from development.

2. The existing land use map be amended by adding the designations: "Environmentally Sensitive Areas" and "Designated Historic Sites". These areas, outlined in the study pertaining to the M.D., should be shown on this map.

3. The General Municipal Plan and Land Use Bylaw should be revised to reflect the new information obtained by this study.

4. Point 2.2.1 of the General Municipal Plan will no longer be required.

5. Points 2.2.2 - 2.2.7 should be located under a new land use title of "Environmentally Sensitive Areas". The mapped land areas should dividied into 3 units: Provincial, Regional and Local. The policy statements regarding land use and protection should reflect the level of importance of the ESA, eg. policies for provincial areas should be highly directive, while local ESA policies may be more permissive.

6. The Land Use Bylaw should allow existing uses to continue. Implementation of this should consider the benefits of providing land owners with interpretative information. (Fish and Wildlife Division and Ducks Unlimited can be important sources of general information and may be willing to conduct site specific investigations at little or no cost.)

7. Recreational uses both in the General Municipal Plan and the Land Use Bylaw should be carefully addressed. Extensive, non-motorized recreational uses should be permitted but intensive and motorized forms of recreation should require greater scrutiny.

8. Positive use of ESA's (such as education, interpretation and scientific study) should be actively encouraged.

9. A number of ESA's are small sloughs. The number and benefits of maintaining all of the local ones may be questioned. The process of determining how limited, or extensive, the ESA's should be could involve local citizens and interest groups.

10. The Land Use Bylaw should require that any development proposals within an ESA or adjacent to an ESA require an impact assessment.

11. The General Municipal Plan should require the dedication of environmental reserve within ESA's in accordance with an open space plan, as a buffer between the development and open water or water course, or as evident from the impact assessment.

12. In accord with the provisions for industrial, agricultural and country residential uses, subdivision should not be permitted in ESA's.

13. A survey of land ownership and present land use should be conducted to determine private and public land uses. Notations should be placed on all public land that such land has been identified as being environmentally sensitive.

14. Discussion should be undertaken with special interest groups and with the government (Public Lands Division and the Fish and Wildlife Division) to further identify significance, to develop programs to purchase or trade lands, and to identify the most important ESA's. (see recommendation "g" under Point 1 of this section)

15. All provincially significant areas be identified and strict land use and development controls be implemented to prevent adverse effects (i.e. no development within the ESA except for necessary services).

16. In the long-term, ESA's should be acquired by public bodies (governments, non-profit groups, institutions, individuals) who will maintain the intent of such areas.

17. Public interest in ESA's should be assessed through public release of the study and assessment of public reaction.

18. Oil and gas leases in the area of ESA's should be reviewed, prior to the establishment of ESA's. This information would be useful in determining possible conflicts and the need for policies or to anticipate future problems.

19. Public participation in the establishment of ESA's should be encouraged and viewed as a valuable tool to build commitment.

20. All new environmental policies should be cross-checked with other area policies to ensure consistency.

21. Public facilities should avoid ESA's. We recognize that conflicts will occur where routing can not be changed to avoid ESA's. Case by case study will have to be conducted for these instances. Some facilities such as pipelines can be made acceptable during construction, and thus do not pose as significant a problem as surface uses.

Co. of Strathcona Recommendations

The following recommendations were made relative to the Co. of Strathcona.

1. It would be preferable, whether ESA's and historic/archaeological sites are embodied in statutory plans or other documents, to recognize that environment and history play an important role in lifestyle. Therefore, removal of reference to "human settlement" in Goal 4 of Part C, of the General Municipal Plan, is suggested. This reference diminishes the opportunity to preserve the natural environment.

2. Because the County has both urban and rural components, a restatement of environmentally sensitive area goals in the rural context would be preferable.

3. The existing rural land use map be amended by the addition of the designation -- "Environmentally Sensitive Areas" -- and that the areas outlined in this study pertaining to the County be shown on this map.

4. It is suggested that the County consider a broader approach as it proceeds with the planning process for Cooking Lake and its immediate backshore. Clearly, Cooking Lake is the major cog in the morainal wetland system, however the other wetland components when viewed in total are also vital to the continued functioning of this wetland complex.

5. Either adopt the Outdoor Master Plan as an area structure plan, or, embody the main provisions of the Outdoor Master Plan within an existing statutory document.

6. Discussion should be undertaken with special interest groups and the provincial government. The intention would be to further identify significance, rank the ESA's of most importance and to advance the programs of land purchase or trading.

7. A number of ESA's are small sloughs. While not all of these may need to be preserved, a program aimed at highlighting the most important sloughs, in the public's view, would be useful in obtaining public commitment.

8. The provincially significant Pointe-Aux-Pins Soapholes should be designated an Environmentally Sensitive Area. This would be required under the provision of Recommendation 3 of the Regional Plan policies suggested in this study.

9. Development of any kind should not be permitted in the Soapholes area.

10. The Soapholes should be used for interpretation, education, research and tourism. This area should become a joint project between education authorities, provincial government agencies and the County.

11. Consideration should be given to developing a wildlife management plan, especially for ungulates, to identify the role of some locally significant ESA's to the County.

Conclusions and Recommendations

To end the report the following recommendations, over and above those specific to the rural municipalities in question, were suggested:

1. the need for the Provincial Government to get involved in the process of identifying and legitimizing ESA's of provincial significance,

2. the requirement for research to be conducted into the use of the theory of "island biogeography" as a planning tool,

3. the need for research to be conducted into how much of a buffer needs to be kept, to ensure that waterfowl production on the region's very important wetlands is maintained.

4. the continued co-operation of the EMRPC with various agencies to attempt to enhance riparian habitat close to the region's wetlands.

5. the initiation by the EMRPC of a multi-jurisdictional study to identify a boundary for the Cooking Lake Moraine.

6. the need for an initiative to 'save' one or several of the surficial exposures resulting from the on going open-pit aggregrate mining in the Villeneuve area.

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